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vey's 'Sea-side Book,' of which it is impossible to speak too highly; and most pleasant it is to see a man of genius and learning thus gathering the bloom of his varied knowledge, to put it into a form equally suited to a child and to a *savant*. Seldom, perhaps, has there been a little book in which so vast a quantity of facts has been compressed into so small a space, and yet told so gracefully, simply, without a taint of pedantry or cumbrousness,—an excellence which is the sure and only mark of a perfect mastery of the subject.

"Two little 'Popular' Histories, one of British Zoophytes, the other of British Sea-weeds, by Dr. Landsborough, are very excellent; and are furnished, too, with well-drawn and colored plates, for the comfort of those to whom a scientific nomenclature (as liable as any other human thing to be faulty and obscure) conveys but a vague conception of the objects. These may serve well for the beginner, as introductions to Professor Harvey's large work on the British Algæ, and to the new edition of Professor Johnston's invaluable British Zoophytes."

To these we may add "Quatrefages' Souvenirs of a Naturalist," a fascinating work by a first-class observer, on the animals of the coast of France and of the shores of the Mediterranean, republished in London.

NATURAL HISTORY MISCELLANY.

ZOÖLOGY.

INSECTS LIVING IN THE SEA.—Insects are essentially earth-inhabiting. A small proportion of all the insects live in fresh water, and less than a hundred are known to inhabit the sea. Only three species are known to inhabit the sea in this country. A year ago in August, while dredging in Salem harbor, we detected the larvæ of a species of fly living on the floating eel-grass, and apparently living on the vegetable matter collected on

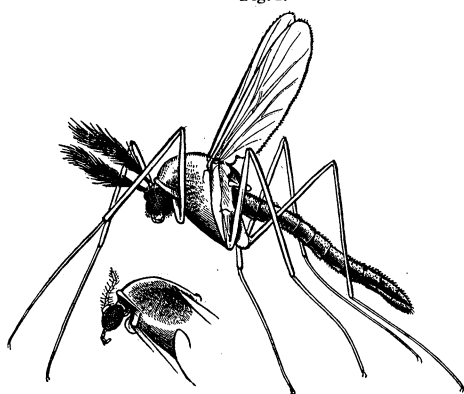
Fig. 1 a.



Fig. 1



Fig. 2.

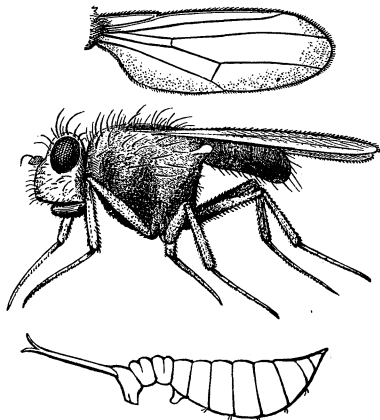


it. The twentieth of September they transformed to pupæ (Fig. 1; 1 a, fore-foot of the larva), and on the ninth of October appeared the fly (Fig. 2, male, and beneath, head of the female with simple antennæ), the male of which has beautifully pectinated antennæ, and belongs to the genus *Chironomus*. We have since found the full-grown

larva living in abundance at low-water mark among the green sea-weeds late in April. They must have hatched from eggs laid in the autumn.

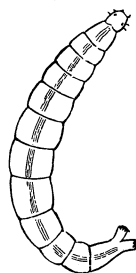
Another insect (Fig. 3) we have found late in April at low-water mark, in Casco Bay, Maine, and, like the Chironomus, living in the green sea-

Fig. 4.



weed. It is, probably, the larva of some Rove-beetle (*Staphylinus*), and as suggested to us by Dr. Stimpson, is, perhaps, the larva of *Micralymna*, a beetle known in Europe to inhabit the sea.

Fig. 3.



In this connection we figure the brine-inhabiting Ephydra (Fig. 4, side-view of the fly; 4a, wing; 4b, side-view of the puparium or pupa-case), which, according to Mr. E.

T. Cox, from whom we have received specimens, lives in the very strong brine of the "Graduation House," at the Equality Salt-works, Gallatin County, Illinois. Dr. T. d'Oremieulx has sent us a puparium hardly distinguishable from the Illinois one, which he collected under the sea-weed on the shores of Narragansett Bay; so that we have here another sea-inhabiting insect.

We figure (5) the pupa of *Eristalis*, or Rat-tailed fly, which is found with the Ephydra, at the Equality Salt-works. Mr. Horace Mann has found immense numbers of a similar insect in the briny waters of Mono lake, California, and it is not improbable that some of these curious flies will be found to inhabit our shores between tide-marks. — A. S. P.

Fig. 5.



DIRECTIONS FOR COLLECTING THE LOWER FORMS OF MARINE ANIMALS.
—The collector must be acquainted with the fact that the sea has distinct zones of animal and plant-life. Thus, between high and low-water-mark certain species occur. From low-water mark to fifteen fathoms, another set is found peculiar to that zone. Beyond these depths other zones occur. In collecting between high and low-water mark, the collector must visit the different kinds of shores. Thus on a rocky and exposed shore, particular attention must be paid to the pools left by the tide; those nearest low-water mark will always be found the richest. Having selected a proper pool for examination, let him lie down flat upon the rocks, first taking a survey of the pool before disturbing it. Having observed or collected what free swimming animals he chooses, he may then lift carefully (in order not to rile the water), one by one, the

loose fragments of rocks that possibly cover the bottom, and examine their lower surfaces. Here he will find many curious and interesting shells, some of them minute; the brittle starfish, several kinds of worms, and above all those elegant sea-slugs, little animals closely allied to the snail, only having no shell. Many other forms will be found in such haunts by careful searching. On these rocky shores the collector should take advantage of the low spring and fall tides, for then a portion of another zone of animal life will be exposed to him, and he will find many novelties. Never leave a stone unturned in such places, for marine animals are proverbially shy, and prefer seclusion. He must also take advantage of the heavy storms that beat upon the coast, and along the beaches after one of these storms he may pick up many rarities. In fact he may find certain species washed up in the greatest profusion, that he will rarely meet with at other times. The long mud-flats will repay him a muddy tramp at low water, for, crawling over the mud, or buried just beneath its surface, he will find certain mollusks and worms peculiar to such places.

One of the richest fields for collecting near cities will be found on the piles of any exposed pier, or bridge. We mean by exposure, a structure that stands in deep water where the ocean has more or less direct access to it, protected at the same time from the heavy wash of the sea by some outlying island or cape. Let him take a small boat, and, armed with a net having a stout wire frame affixed to a pole ten feet long, he may drag up at low tide from the sides of the piles by a slow raking motion, a perfect harvest of sea-anemones, sea-urchins, starfishes, shells, crabs, worms, and a legion of other forms that will keep him busy for some time.

An outfit for a collector is, first of all, a basketful of wide-mouthed bottles, pickle jars will answer the purpose, a pair of forceps, a good pocket lens, unless he carries it in his head, a case-knife to detach certain animals from the rocks; a few little pocket vials will not come amiss. For collecting animals beyond the limits described, the collector must possess a dredge, the simplest form of which is a triangle made of iron; the longest side sharpened on one edge to act as a scraper. To this iron a bag of netting is affixed. Supplied with a good manilla rope, he may dredge to the extent of his line, and the assemblage of animals will be quite unlike those that he has met with in the zones mentioned above.

PROCEEDINGS OF SCIENTIFIC SOCIETIES.

SOCIETY OF NATURAL HISTORY, *Portland, Me., May 7.*—The rare shell, *Helix multidentata*, before known only by a few specimens, was reported as occurring abundantly in a wood on Cape Elizabeth. The most inter-